# R E M A R K S

Reconsideration of the present application in view of the above amendments and following remarks is respectfully requested. Claims 1 and 6 through 10 have been amended. Forty-eight claims are pending in the application: Claims 1 through 17 and 26 through 56.

By way of this amendment, Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain any outstanding issues that require adverse action, it is respectfully requested that Examiner telephone the undersigned at (805) 781-2865 so that such issues may be resolved as expeditiously as possible.

## 35 U.S.C. §102

1. Claim 17 stands rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,513,298 (*Stanford et al.*).

The Examiner asserts that *Stanford et al.* disclose a method of speech recognition comprising "searching for an attention word based on a first context including a first set of grammar models" and "switching upon finding the attention word to a second context to search for an open-ended user request." Specifically, the Examiner states that this is shown from column 7, line 20 to column 8, line 62.

*Stanford et al.* disclose a speech recognition system which can switch between different contexts (Column 7, line 50). In the embodiment shown in figure 3, a keyboard selector selects either the first context or the second context. This selection is performed to convert speech input information received from the speech input adapter into character string information which is then output to the display (Column 9, lines 14-23).

In contrast, Applicants' independent claim 17 includes "searching for an attention word based on a first context" and "switching, upon finding the attention word, to a second context." As stated in Applicants' specification at page 10, Lines 1-30, the attention word notifies the NLICS that following the attention word, a request will arrive. As such, the microphone arrays employed by the NLICS only have to search for the attention word or words within the physical space defined by the microphone arrays. For example, if the attention word is programmed as "Mona", then the user's request becomes "Mona, I wanna watch TV." Furthermore, individual users may have separate attention words specific to that user. For example, within a household, a first user's attention word is "Mona" while a second user's attention word is "Thor". When the NLICS hears the attention word "Mona", the system assumes that the first user is issuing the command. Applicants' invention, thus is a voice recognition system which switches contexts based upon the attention words. This provides for a system which more accurately can determine received commands.

Stanford et al. do not disclose or suggest switching context based upon an attention word. In contrast, they teach a system in which different users are identified based upon a specific application they are running. The application has interfaces to the speech recognition system. The application will request a certain type of operation or ask the recognition server to load a certain recognition context and to activate the context for recognition when required (Column 5, lines 5-11). There is no suggestion of using the attention word of Applicants current invention. As is such, Stanford et al. do not disclose or suggest every element present in Applicants invention. Thus, the rejection is overcome and claim 17 is in condition for allowance.

## 35 U.S.C. §103

2. Claims 1 through 5 are rejected under 35 U.S.C. 103(a) as being obvious over *Wyard et al.* in view of *Guiliani et al.* further in view of U.S. Patent No. 5,513,298 *(Stanford et al.)*

Claim 1 has been amended to recite "wherein at least one of the different acoustic models and at least one of the different grammars is downloaded over a network." As describe in Applicants' specification at page 11, lines 16-35: "The external network interface couples the NLICS to an external network, such as a home local area network, an intranet or the internet. As such, the NLICS may download additional grammars, HMM models, device abstractions, CD, DVD television or other programming information and/or lexicons that are maintained in central databases within the external network." This allows for a speech recognition system which can easily adapt to new devices or additional commands for already existing devices coupled to the system.

None of the references cited by the Examiner show or suggest a system such as is claimed by Applicants. As is such, the rejection is overcome and claim 1 is in condition for allowance. Claims 2 through 5 are dependent upon allowable claim 1 and are allowable for at least the same reasons as stated above.

3. Claims 6 through 7 are rejected under 35 U.S.C. 103(a) as being obvious over *Wyard et al.* in view of *Guiliani et al.* further in view of *Stanford et al.* as applied to claim 1, further in view of U.S. Patent No. 5,885,002 *(Armstrong)*.

Applicants' claim 6 has been amended into independent form and includes all of the limitations of previously pending claim 1.

Regarding claim 6, the Examiner has stated that *Armstrong* shows in Fig. 16 a system which controls multiple devices such as

robotic devices and a digital controller. Furthermore, the Examiner asserts that it would have been obvious to incorporate the the use different grammar as taught by *Armstrong* because it would allow accurate control for each device. However, neither *Stanford et al.* nor *Armstrong* show or suggest a system "wherein the natural language interface abstracts each·of the plurality of devices into a respective one of plurality of grammars and a respective one of a plurality of lexica corresponding to each of the plurality of devices" such as is claimed by Applicants.

The Examiner has simply stated that it would be obvious to combine the references to show the limitation as claimed by Applicants, however, neither reference itself shows abstracting grammar and lexica into a group for controlling one device, let alone a system which has multiple groups for controlling respective multiple devices. Simply because the speech recognition system of *Stanford et al.* has different contexts does not provide the motivation to separate those contexts based upon the control of a device. Furthermore, *Stanford et al.* is a system which is controlling one device and has multiple contexts, thus if the system of *Stanford et al.* were modified to control multiple devices, the system would have many more contexts added and not separate them based upon the device, but would separate the contexts in the same manner as they were separated when the system only had one device. · As is such, the rejection of is overcome and claim 6 is in condition for allowance.

Applicants' claim 7 has been amended into independent form and includes all of the limitations of previously pending claim 1.

Regarding claim 7, Applicants recite a system "wherein the natural language interface module searches for the non-promted, open-ended user requests upon the receipt and recognition of an

attention word." As stated above with reference to the 35 U.S.C. 102 rejection of claim 17, *Stanford et al.* do not disclose or suggest the use of an "attention word" such as claimed by Applicants. Furthermore, the Examiner has not shown or stated that *Armstrong* shows such a limitation and Applicants submit this limitation is not shown by *Armstrong*. As is such, the rejection is overcome and claim 7 is in condition for allowance.

4. Claims 8 through 10 are rejected under 35 U.S.C. 103(a) as being obvious over *Wyard et al.* in view of *Guiliani et al.* further in view of *Stanford et al.*

Applicants' claim 8 has been amended into independent form and includes all of the limitations of previously pending claim 1.

Regarding claim 8, Applicants recite a system "wherein the natural language interface module context switches grammars, acoustic models, and lexica upon receipt and recognition of an attention word." As stated above with reference to the 35 U.S.C. 102 rejection of claim 17, *Stanford et al.* do not disclose or suggest the use of an "attention word" such as claimed by Applicants. Thus, the rejection is overcome and claim 8 is in condition for allowance.

Applicants' claims 9 and 10 have each been amended into independent form and includes all of the limitations of previously pending claim 1.

Regarding claims 9 and 10, Applicants claim "a grammar module for storing different grammars for each of the plurality of devices" and "an acoustic model module for storing different acoustic models for each of the plurality of devices," respectively. The Examiner has not stated or shown where any of the references show either of these limitations. While *Stanford et*

*al.* disclose a system with different context they do not teach nor suggest any motivation for separating the context based upon a device. Moreover, *Stanford et al.* is a system that is controlling one device and has multiple contexts, thus if the system of *Stanford et al.* were modified to control multiple devices, the system would have many more contexts added and not separate them based upon the device, but would separate the contexts in the same manner as they were separated when the system only had one device. As is such, the rejection is overcome and claims 9 and 10 are in condition for allowance.

5. Claims 13 through 16 are rejected under 35 U.S.C. 103(a) as being obvious over *Wyard et al.* in view of *Guiliani et al.* further in view of *Stanford et al.* as applied to claim 1, further in view of U.S. Patent No. 5,878,394 (*Muhling*).

Applicants have amended claim 1 on which all of claims 13 through 16 are dependent. As stated above, claim 1 is in condition for allowance, thus the rejection is overcome and claims 13 through 16 are also in condition for allowance at least because of their dependence upon the allowable claim.

6. Regarding claims 11 and 12, the Examiner has given no basis for the rejection of these claims. Thus, Applicants assert these claims are in condition for allowance. Not only has the Examiner given no basis for the rejection of claims 11 and 12, but none of the references cited by the Examiner show the invention as claimed by Applicants. Furthermore, claims 11 and 12 are dependent upon allowable claim 1. Thus, claims 11 and 12 are in condition for allowance and the rejection is overcome.

7.    Claims 26 through 54 are rejected under 35 U.S.C. 103(a).   The Examiner asserts that claims 26 through 54 comprise all the limitations of claims 1 through 17 and therefore are rejected under the same rational. (Applicants' assume that this rejection was intended to apply to Claims 26 through 56.)
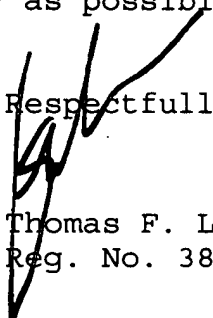
The examiner is in error as claims 26 through 56 contain limitations the Examiner has not stated are shown in the cited references with regard to the rejection of claims 1 through 17. Specifically, independent claims 26, 45 and 50 all claim "an external network interface coupled to the natural language interface control system."  The Examiner does not state where in any of the cited references such a limitation can be found, nor is such a limitation present in any of the cited references.  Not only is the claimed limitation absent from the cited references, but there is also no motivation in the cited references to include the claimed external network.  Thus, the combination of the references cited do not teach the claimed invention.

Similarly, independent claims 55 and 56 recite an external network.  For the reasons stated above, this limitation is not shown by the combination of the references cited by the Examiner.  Thus, the rejection is overcome and claims 26 through 56 are in condition for allowance.

## CONCLUSION

In view of the above, Applicants submit that the pending claims are in condition for allowance, and prompt and favorable action is earnestly solicited. Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain any outstanding issues that require adverse action, it is respectfully requested that the Examiner telephone Thomas F. Lebens at (805) 781-2865 so that such issues may be resolved as expeditiously as possible.
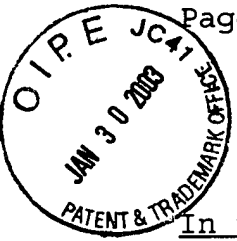
Respectfully submitted,

Thomas F. Lebens
Reg. No. 38,221

Dated: January 23, 2003

Address all correspondence to:

FITCH, EVEN, TABIN & FLANNERY
Thomas F. Lebens
120 South LaSalle Street, Ste. 1600
Chicago, IL 60603
(805) 781-2865

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

In the claims:

The following shows changes made to the claims:

1. A natural language interface control system for operating a plurality of devices comprising:

a 3 dimensional microphone array;

a feature extraction module coupled to the first microphone array;

[a speech recognition module coupled to the first microphone array,]

a speech recognition module coupled to the feature extraction module, wherein the speech recognition module utilizes hidden Markov models and can switch between different acoustic models and different grammars wherein at least one of the different acoustic models and at least one of the different grammars is downloaded over a network;

a natural language interface module coupled to the speech recognition module; and

a device interface coupled to the natural language interface module, wherein the natural language interface module is for operating a plurality of devices coupled to the device interface based upon non-prompted, open-ended natural language requests from a user.

6. A natural language interface control system for operating a plurality of devices comprising:

a 3 dimensional microphone array;

a feature extraction module coupled to the first microphone array;

a speech recognition module coupled to the feature extraction module, wherein the speech recognition module utilizes hidden Markov models and can switch between different acoustic models and different grammars;

a natural language interface module coupled to the speech recognition module; and

a device interface coupled to the natural language interface module, wherein the natural language interface module is for operating a plurality of devices coupled to the device interface based upon non-prompted, open-ended natural language requests from a user; [The system of Claim 1]

wherein the natural language interface abstracts each of the plurality of devices into a respective one of a plurality of grammars and a respective one of a plurality of lexica corresponding to each of the plurality of devices.

7.   A natural language interface control system for operating a plurality of devices comprising:

a 3 dimensional microphone array;

a feature extraction module coupled to the first microphone array;

a speech recognition module coupled to the feature extraction module, wherein the speech recognition module utilizes hidden Markov models and can switch between different acoustic models and different grammars;

a natural language interface module coupled to the speech recognition module; and

a device interface coupled to the natural language interface module, wherein the natural language interface module is for operating a plurality of devices coupled to the device

interface based upon non-prompted, open-ended natural language requests from a user; [~~The system of claims 1~~]

wherein the natural language interface module searches for the non-prompted, open-ended user requests upon the receipt and recognition of an attention word.

8. A natural language interface control system for operating a plurality of devices comprising:

a 3 dimensional microphone array;

a feature extraction module coupled to the first microphone array;

a speech recognition module coupled to the feature extraction module, wherein the speech recognition module utilizes hidden Markov models and can switch between different acoustic models and different grammars;

a natural language interface module coupled to the speech recognition module; and

a device interface coupled to the natural language interface module, wherein the natural language interface module is for operating a plurality of devices coupled to the device interface based upon non-prompted, open-ended natural language requests from a user; [~~The system of Claim 1~~]

wherein the natural language interface module context switches grammars, acoustic models, and lexica upon receipt and recognition of an attention word.

9. A natural language interface control system for operating a plurality of devices comprising:

a 3 dimensional microphone array;

a feature extraction module coupled to the first microphone array;

a speech recognition module coupled to the feature extraction module, wherein the speech recognition module utilizes hidden Markov models and can switch between different acoustic models and different grammars;

a natural language interface module coupled to the speech recognition module;

a device interface coupled to the natural language interface module, wherein the natural language interface module is for operating a plurality of devices coupled to the device interface based upon non-prompted, open-ended natural language requests from a user; and [The system of Claim 1 further comprising]

a grammar module for storing different grammars for each of the plurality of devices.

10.   A natural language interface control system for operating a plurality of devices comprising:

a 3 dimensional microphone array;

a feature extraction module coupled to the first microphone array;

a speech recognition module coupled to the feature extraction module, wherein the speech recognition module utilizes hidden Markov models and can switch between different acoustic models and different grammars;

a natural language interface module coupled to the speech recognition module;

a device interface coupled to the natural language interface module, wherein the natural language interface module is for operating a plurality of devices coupled to the device interface based upon non-prompted, open-ended natural language

requests from a user; and [~~The system of Claim 1 further~~
~~comprising~~]

an acoustic model module for storing different
acoustic models for each of the plurality of devices.